

Amendments to the Claims

The following Listing of Claims replaces all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-11 (canceled)

Claim 12 (original): A method of manufacturing a vertical cavity surface emitting laser (VCSEL), comprising:

forming a vertical stack structure having a substantially planar top surface, including
a top mirror,
a bottom mirror,
a cavity region disposed between the top mirror and the bottom mirror and including
an active light generation region,
at least one of the top mirror and the bottom mirror having a layer with a peripheral
region oxidized into an electrical insulator as a result of exposure to an oxidizing agent,
wherein the vertical stack structure defines two or more etched holes each extending from the
substantially planar top surface to the oxidized peripheral region; and
passivating each of the etched holes by an overlying moisture penetration barrier.

Claim 13 (original): The method of claim 12, wherein the moisture penetration barrier has a thickness selected to prevent substantial vertical moisture intrusion into the etched holes.

Claim 14 (original): The method of claim 13, wherein the moisture penetration barrier comprises a silicon nitride layer having a thickness of approximately 300 nm or greater.

Claim 15 (original): The method of claim 14, wherein the moisture penetration barrier comprises a silicon nitride layer having a thickness of approximately 500 nm or greater.

Claim 16 (original): The method of claim 12, wherein each of the etched holes is moisture passivated by an overlying moisture penetration barrier having a lateral surface area sufficient to prevent substantial delamination of the moisture penetration barrier.

Claim 17 (original): The method of claim 12, wherein multiple etched holes are moisture passivated by a single continuous film of moisture penetration barrier material.

Claim 18 (original): The method of claim 12, further comprising disposing a top electrode over the substantially planar top surface of the vertical stack structure and circumscribing a light emission region substantially free of any overlying moisture penetration barrier material.

Claim 19 (currently amended): The method of claim 18, wherein the moisture penetration barrier covers a major portion of the top surface of the vertical stack structure other than the top electrode and the light emission region ~~regions~~.

Claim 20 (original): The method of claim 12, wherein:
the moisture penetration barrier includes a peripheral edge intersecting the top surface of the vertical stack structure at a moisture penetration interface; and
at the top surface of the vertical stack structure each of the etched holes is circumscribed by a respective peripheral edge having a substantial portion separated from the moisture penetration interface by a distance sufficient to prevent substantial lateral moisture intrusion into the etched holes.